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NOTICE INFORMING THE APPLICANT OF THE
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(PCT Rule 47.1(c), first sentence)

From the INTERNATIONAL BUREAU

To:

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TUESDAY - 6 JUN 2000

Date of mailing (day/month/year) 25 May 2000 (25.05.00)		
Applicant's or agent's file reference 2235310/DBW		
IMPORTANT NOTICE		
International application No. PCT/AU99/01015	International filing date (day/month/year) 17 November 1999 (17.11.99)	Priority date (day/month/year) 17 November 1998 (17.11.98)
Applicant TELSTRA R & D MANAGEMENT PTY. LTD. et al		

1. Notice is hereby given that the International Bureau has communicated, as provided in Article 20, the international application to the following designated Offices on the date indicated above as the date of mailing of this Notice:
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In accordance with Rule 47.1(c), third sentence, those Offices will accept the present Notice as conclusive evidence that the communication of the international application has duly taken place on the date of mailing indicated above and no copy of the international application is required to be furnished by the applicant to the designated Office(s).

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The communication will be made to those Offices only upon their request. Furthermore, those Offices do not require the applicant to furnish a copy of the international application (Rule 49.1(a-bis)).
3. Enclosed with this Notice is a copy of the international application as published by the International Bureau on 25 May 2000 (25.05.00) under No. WO 00/30329

REMINDER REGARDING CHAPTER II (Article 31(2)(a) and Rule 54.2)

If the applicant wishes to postpone entry into the national phase until 30 months (or later in some Offices) from the priority date, a demand for international preliminary examination must be filed with the competent International Preliminary Examining Authority before the expiration of 19 months from the priority date.

It is the applicant's sole responsibility to monitor the 19-month time limit.

Note that only an applicant who is a national or resident of a PCT Contracting State which is bound by Chapter II has the right to file a demand for international preliminary examination.

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If the applicant wishes to proceed with the international application in the national phase, he must, within 20 months or 30 months, or later in some Offices, perform the acts referred to therein before each designated or elected Office.

For further important information on the time limits and acts to be performed for entering the national phase, see the Annex to Form PCT/IB/301 (Notification of Receipt of Record Copy) and Volume II of the PCT Applicant's Guide.

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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)



Applicant's or agent's file reference 2235310/DBW/dl	FOR FURTHER ACTION	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416).
International Application No. PCT/AU99/01015	International Filing Date (<i>day/month/year</i>) 17 November 1999	Priority Date (<i>day/month/year</i>) 17 November 1998
International Patent Classification (IPC) or national classification and IPC Int. Cl. ⁷ H04M 3/50; G06F 17/30		
Applicant TELSTRA R & D MANAGEMENT PTY. LTD. et al		

1.	This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2.	This REPORT consists of a total of 3 sheets, including this cover sheet. <input type="checkbox"/> This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT). These annexes consist of a total of sheet(s).

3. This report contains indications relating to the following items:	
I	<input checked="" type="checkbox"/> Basis of the report
II	<input type="checkbox"/> Priority
III	<input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
IV	<input type="checkbox"/> Lack of unity of invention
V	<input checked="" type="checkbox"/> Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
VI	<input type="checkbox"/> Certain documents cited
VII	<input type="checkbox"/> Certain defects in the international application
VIII	<input type="checkbox"/> Certain observations on the international application

Date of submission of the demand 14 June 2000	Date of completion of the report 16 March 2001
Name and mailing address of the IPEA/AU AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA E-mail address: pct@ipaaustralia.gov.au Facsimile No. (02) 6285 3929	Authorized Officer JAMES WILLIAMS Telephone No. (02) 6283 2599

I. Basis of the report**1. With regard to the elements of the international application:***

- ☒ the international application as originally filed.
- ☐ the description, pages , as originally filed,
 pages , filed with the demand,
 pages , received on with the letter of
- ☐ the claims, pages , as originally filed,
 pages , as amended (together with any statement) under Article 19,
 pages , filed with the demand,
 pages , received on with the letter of
- ☐ the drawings, pages , as originally filed,
 pages , filed with the demand,
 pages , received on with the letter of
- ☐ the sequence listing part of the description:
 pages , as originally filed
 pages , filed with the demand
 pages , received on with the letter of

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

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- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, was on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

4. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages
- ☐ the claims, Nos.
- ☐ the drawings, sheets/fig.

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

** Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**1. Statement**

Novelty (N)	Claims 1-39	YES
	Claims	NO
Inventive step (IS)	Claims 1-39	YES
	Claims	NO
Industrial applicability (IA)	Claims 1-39	YES
	Claims	NO

2. Citations and explanations (Rule 70.7)**Novelty and Inventive Step**

None of the citations, individually or in combination, disclose all of the essential features of the claimed invention. In particular the citations do not disclose the use of a prompt navigation language defined in the description of the specification as a content language, such as WML or HDML, which includes text data followed by link data, without visual layout data.



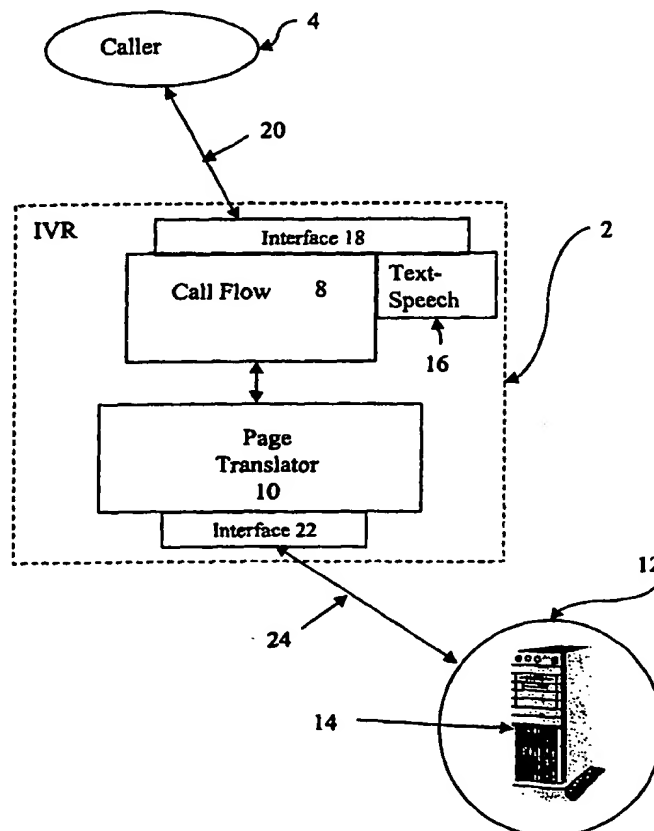
INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁶ : H04M 3/50, G06F 17/30		A1	(11) International Publication Number: WO 00/30329
			(43) International Publication Date: 25 May 2000 (25.05.00)
(21) International Application Number: PCT/AU99/01015 (22) International Filing Date: 17 November 1999 (17.11.99) (30) Priority Data: PP 7135 17 November 1998 (17.11.98) AU (71) Applicant (for all designated States except US): TELSTRA R & D MANAGEMENT PTY. LTD. [AU/AU]; 255 Elizabeth Street, Sydney, NSW 2000 (AU). (72) Inventor; and (75) Inventor/Applicant (for US only): SCOTT, Andrew, Ewart [AU/AU]; 770 Blackburn Road, Clayton North, VIC 3168 (AU). (74) Agents: WEBBER, David, Brian et al.; Davies Collison Cave, 1 Little Collins Street, Melbourne, VIC 3000 (AU).		(81) Designated States: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG). Published With international search report.	

(54) Title: A DATA ACCESS SYSTEM AND METHOD

(57) Abstract

A data access system, including an interface for connecting to a caller using a voice call path, a call flow module for receiving a request for data from the caller on the call path, and a page translator for sending the request to a location in a communications network determined by the request, the location including the data in a prompt navigation language. The page translator receives and translates the data in the prompt navigation language into voice data, and the call flow module, with a text to speech converter, converts the voice data to voice for the caller on the call path. The system provides a voice browser for standard telephone users to access data on communications networks, such as the Internet.



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A DATA ACCESS SYSTEM AND METHOD

The present invention relates to a data access system and method, and a voice browser.

5 The Internet provides access to information and data resources on a scale which is unprecedented. The resources however are primarily limited to individuals who have access to a computer system with appropriate communications equipment and software that enables the system to connect to the Internet. For this reason the media continually refers to a current divide between the information rich and the information poor, being those who have access
10 to the Internet and those do not. One way of addressing this divide and facilitate wider access to individuals is to move away from requiring the access system to comprise the traditional computer system.

One line of development has focused on providing an access system which includes
15 a telephone interface and voice browser software on a server connected to the Internet. The telephone interface allows any person with a telephone to call the server and respond to voice prompts issued by the server by pressing keys of the telephone to forward the corresponding dual tone multifrequency (DTMF) signals for the server. The DTMF responses received by the server are used to instruct the voice browser to access World Wide Web pages from the
20 Internet. The voice browser on receiving web pages encoded in hypertext markup language (HTML) includes translation software to deconstruct the pages into voice data which is used to provide voice signals for the caller. There are however significant difficulties and problems associated with the translation of HTML pages into appropriate voice data for a caller.

25 Whilst the text of a HTML page can be directly translated into voice data considerable difficulties are associated with the other data elements of a HTML page. HTML is a language which is designed to provide a visual display on a computer screen, and accordingly the various display elements cannot be correctly dealt with, if at all, by the translation software of the voice browser. The various video and image formats, such as MPEG and JPEG, cannot
30 be translated. Also a number of web sites utilise frames and tables in their HTML code which also gives rise to significant difficulties and complexity for the voice browser. The tendency for HTML pages is to include more and more visual elements, such as video and images, to attract users and this gives rise to significant difficulties for a voice browser.

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A separate, independent, line of development is based on the work of the wireless application protocol (WAP) forum which is described at <http://www.wapforum.org>. The forum and WAP is concerned with the delivery of data on a wireless network and, in particular, the ability of wireless devices, such as mobile telephones, to access data resources, such as those available on the Internet. The WAP protocol is used by microbrowsers stored on wireless devices to access data information encoded in a particular format for the WAP protocol, such as the wireless markup language (WML). WML is a content language specifically developed for wireless devices with limited text displays and which use prompt driven navigation to display text and command menus. WML therefore allows delivery of text which can be selected and requested using displayed prompts and the keys of a wireless device. Details concerning WAP and WML are available at <http://www.wapforum.org>. A similar protocol and language for delivery of content to wireless devices has been developed by Unwired Planet, Inc. (now known as Phone.com, Inc.) of California and details concerning their handheld device transport protocol (HDTP) and their handheld device markup language (HDML) are available at <http://www.uplanet.com> (<http://www.phone.com>). HDML breaks text to be displayed on a wireless device into cards which can be moved between one another by selecting "accept" or "previous" keys on a handheld device. Soft keys are also available for inclusion in the cards to navigate between different cards based on display prompts. Data can also be keyed in on the wireless device in response to a received prompt and forwarded back to a HDTP server. Whilst the work of the WAP forum and Unwired Planet is a significant advance, access to the content still requires a person to have access to a wireless device, such as a mobile phone, which includes a microbrowser that can request and display content encoded in WML or HDML.

25 In accordance with the present invention there is provided a data access method, including:

- connecting to a caller using a voice call path;
- receiving a request for data from said caller on said call path;
- sending said request to a location in a communications network determined by said
- 30 request, said location including said data in a prompt navigation language;
- receiving and translating said data in said prompt navigation language into voice data;
- and
- converting said voice data to voice for said caller on said call path.

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The present invention also provides a data access system, including:
means for connecting to a caller using a voice call path;
means for receiving a request for data from said caller on said call path;
means for sending said request to a location in a communications network determined
5 by said request, said location including said data in a prompt navigation language;
means for receiving and translating said data in said prompt navigation language into
voice data; and
means for converting said voice data to voice for said caller on said call path.

10 The present invention also provides a voice browser stored on a computer readable
storage medium, including:
code for receiving a request for data from a user;
code for sending said request to a location in a communications network determined
by said request, said location including said data in a prompt navigation language;
15 code for receiving and translating said data in said prompt navigation language into
voice data; and
code for converting said voice data to voice for said user.

In the context of the specification, a "prompt navigation language" is a content
20 language, such as WML or HDML, which includes text data followed by link data or prompt
data, without visual layout data.

A preferred embodiment of the present invention is hereinafter described, by way of
example only, with reference to the accompanying drawings, wherein:

25 Figure 1 is a block diagram of a preferred embodiment of a data access system with
a voice browser;

Figure 2 is a flow diagram of steps executed by a call flow module of the system; and
Figure 3 is a flow diagram of steps executed by a page translator of the system.

30 A data access system, as shown in Figure 1, includes an interactive voice response
(IVR) platform 2 having a call flow module 8, a page translator module 10 and a text to
speech module 16 stored on the platform. The IVR 2 also includes a telecommunications
interface 18 for terminating calls received from a caller using a voice terminal 4, such as a

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standard telephone, so as to complete and connect to a communications path 20 between the caller 4 and the IVR 2. The IVR 2 also has an ISDN interface 22 to provide a permanent ISDN primary rate connection 24 to the Internet 12. The IVR 2 is a standard IVR platform which includes the interfaces 18 and 22 and the text to speech module 16. The IVR may, for example, be the First Contact IVR produced by Scitec. The text to speech module 16 may be the Learnout and Hauspie TruVoice module. The Internet 12 includes at least one server 14 which is able to communicate with the page translator 10 using a standard protocol, such as HTTP, and stores prompt navigation language data, such as WML or HDML data. The modules 8, 10 and 16 and the interfaces 18 and 22 provide a voice browser for use by a caller 4. The modules 8, 10 and 16 are preferably implemented by computer programs, but can be implemented entirely or partly by hardware circuits, such as an ASIC, and may also be distributed over different communicating systems, as would be understood by those skilled in the art.

15 The call flow module 8 executes the steps described below with reference to Figure 2. When a caller 4 makes a call to the IVR 2 the module 8 uses the line interface 18 to establish a call with the caller 4 and connect to and complete the call path 20 at step 30. The call flow module may await receipt of an identifying pin or security password to determine that the caller is authorised before proceeding to step 32. At step 32 the module 8 initialises a session with the page translator module 10 by forwarding an initialising message to the translator module 10. In response, call flow 8 will receive a default home universal resource locator (URL) from the translator 10 at step 34, which is stored for the caller 4. Call flow 8 then instructs the translator 10 at step 36, to access and download the data of the page at the location on the Internet 12 designated by the stored URL. Call flow 8 forwards the URL in a get page message, and the translator 10 obtains the page which is deconstructs into a number of data elements. In response to the get page message, the translator 10 returns to the call flow module a total number of elements for the page.

Call flow 8 sets an element number count `el_num` to 0 at step 38. It then determines at step 40 whether the final or total element number has been exceeded for the currently requested page. This condition is a trap for an error and will normally always return false. If it returns true and the final number is exceeded operation returns to step 34, otherwise operation proceeds to step 42. At step 42, the call flow module 8 instructs the translator 10,

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using a get element message, to obtain the element el_num of the page. The translator 10 returns the data element and the text string of the element is forwarded, at step 44, to the text to speech module 16 for conversion into corresponding voice which is placed on the call path 20 for the caller 4 via the interface 18. The text strings of the data elements comprise voice 5 data produced for the call flow module 8 by the translator 10.

The call flow module 8, at step 46, determines whether the element el_num includes a prompt requiring return of a digit. If it does, operation proceeds to step 48 where voice delivery is halted and a prompt provided for entry of a single key press by the caller 4. The 10 caller 4 then needs to press a key on the caller's terminal 4 connected to the path 20 so as to forward a DTMF signal corresponding to the key pressed to the call flow module 8 via the interface 18. The module 8 receives the signal corresponding to the single key press at step 50 which is returned in a get link message, at step 60, to the translator 10. The translator 10 responds to the get link message by returning a URL to the call flow module 8 which is 15 received at step 62. The URL returned by the translator 10 is checked at step 64 to determine whether a null URL has been returned, in which case the existing page continues to be announced to the caller 4, as the call flow module proceeds to step 58. If the URL is not a null, then it is stored by the call flow module 8 at step 66 and operation returns to step 36 to download the page corresponding to the new URL.

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If the element el_num does not include a digit prompt, operation proceeds to step 52 to determine whether the element has a string prompt. A string prompt is one which calls for data entry by the caller so if the prompt is included in the element operation proceeds to step 54, where announcement to the caller is halted to await a sequence of key presses to be 25 entered. The prompt will ask the user to enter the data used in the keys of the terminal and then press a final digit, such as "#". When the call flow module 8 detects that a sequence of key presses have been fully entered at step 56, the data inputted is passed to step 60 for formulation in a get link message for the translator 10.

30 If the element el_num does not include any prompts, as determined at steps 46 and 52, the variable el_num is incremented at step 58 and operation returns to step 40. The call flow module 8 will cease execution of the steps when the caller 4 disconnects from the call path 20.

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The page translator module 10 operates in response to the messages received from the call flow module 8 and executes the steps described below with reference to Figure 3. The translator 10 accordingly waits for a message from the call flow 8 at step 82. On receiving a message, the message is stored at step 84 and action taken based on the form of the message is determined in steps 86, 90, 96 and 102.

If the message is an initialising message, as determined at step 86, operation proceeds to step 88, otherwise operation proceeds to step 90. At step 88, the translator 10 simply forwards a default home page URL to call flow 8 and operation returns to step 82.

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If the message is determined to be a get page message at step 90, operation proceeds to step 92, otherwise operation proceeds at step 96. At step 92 the translator 10 forwards a request for the page designated by the URL in the get page message to the Internet 12 via the interface 22. The URL is sent using HTTP to a web server 14 which stores content in WML or HDML. The page retrieved by the translator is WML or HDML page. WML and HDML pages only comprise text data followed by link data or text data followed by prompt data. No visual layout data can be included with WML or HDML pages. Formatting is also restricted corresponding to the restricted display requirements of wireless devices. The translator 10 deconstructs the downloaded page into a number of elements which comprise text data followed by link data or text data followed by prompt data. The number of elements in the page is then determined and forwarded to the call flow module 8 at step 94. Operation then returns to step 82.

If at step 96, the translator 10 determines that the message is a get element message, operation proceeds to step 98, otherwise operation proceeds to step 102. At step 98 the element designated by the el_num in the get element message is retrieved by the page translator and converted into voice data as a text string. Whilst the text in an element is simply placed in the text string, the link or prompt data in an element needs to be handled differently. For example link data including a URL to "CNN" is converted into a text string "press 1 for CNN or press 2 to continue". A string in this format is recognised by the call flow module as being a "digit" prompt, in that it requires a single response by selection from a number of possible responses, such as a binary response set.

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For prompt data of the page, the data may comprise for example:

<ENTRY KEY = "variable" >

<ACTION TASK = "GO" DEST = "http://foo/cgi?\$(variable)" >

input your initials

5 </ENTRY >

This will be translated by the translator into the text string as "input your initials by pressing the keys followed by a #". The call flow module recognises that a string in this format as being a "string" prompt. The text string for the element el_num is then forwarded
10 to the call flow module 8 at step 100 and operation returns to step 82.

If the translator 10 determines the message is a get link message at step 102, operation proceeds to step 104, otherwise operation returns to step 82. At step 104, the translator 10 determines the link designated in the get link message which includes data corresponding to
15 DTMF signals returned by the caller 4. The get link message also includes the element number el_num for which the data has been returned from the caller. Using the element number, the translator is able to determine whether the return data corresponds to a link or a prompt. For a link, using the example described above, if a DTMF signal corresponding to 1 is returned then the URL for CNN is obtained from the element stored by the translator
20 10. If a 2 is returned, then the translator simply provides a null URL for the link. If the get link message and the element number corresponds to a prompt, then variable substitution may need to be made for the URL obtained from the corresponding stored element. Using the example described above, if the caller enters DBW# then the initials DBW are substituted in the variable, and the link URL is determined to be http://foo/cgi?DBW. The link URL
25 determined at step 104 is then returned at step 106 to the call flow module 8, and operation returns to step 82.

As will be apparent from the above, the call flow module 8 and page translator 10 provide an efficient voice browser which has a number of significant advantages. As WML
30 and HDML are languages which are used by wireless device microbrowsers, content developers are able to develop content for these microbrowsers as well as for people with telephones who can dial the IVR platform 2. This content is therefore available to people who would ultimately not have had access to the content, because they do not possess a device with

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a microbrowser or a computer system with access to the Internet.

The syntactical complexity and visual display elements of HTML ensure that HTML pages cannot be unambiguously or correctly decoded by a voice browser. Whilst HTML
5 content can be written to take a voice browser into account, this is invariably not the case, whereas the content and flow of control are clear and well defined in prompt navigation content languages such as WML and HDML. The prompt navigation languages are efficiently utilised by the IVR 2. The translation of WML or HDML pages by the IVR 2 also does not introduce a significant processor load, and accordingly a larger number of simultaneous
10 connections to callers 4 can be maintained without complex or expensive hardware.

Many modifications will be apparent to those skilled in the art without departing from the scope of the present invention as herein described with reference to the accompanying drawings. For example, the IVR platform may also include a speech recognition module to
15 process voice responses from callers 4 instead of DTMF signals sent in response to key presses.

CLAIMS:

1. A data access method, including:
connecting to a caller using a voice call path;
5 receiving a request for data from said caller on said call path;
sending said request to a location in a communications network determined by said request, said location including said data in a prompt navigation language;
receiving and translating said data in said prompt navigation language into voice data;
and
10 converting said voice data to voice for said caller on said call path.
2. A data access method as claimed in claim 1, wherein said translating includes deconstructing the prompt language navigation data into data elements including text data, link data or prompt data.
- 15 3. A data access method as claimed in claim 2, wherein said translating includes converting the data elements to respective text strings which comprise said voice data.
4. A data access method as claimed in claim 3, wherein said translating includes
20 converting said link data to a text string representing a prompt for a single response.
5. A data access method as claimed in claim 3, wherein said translating includes converting said prompt data into a text string which represents a prompt for a string response.
- 25 6. A data access method as claimed in claim 4 or 5, wherein said converting said voice data includes processing said data elements sequentially and awaiting a response from said caller when the data element represents a prompt.
7. A data access method as claimed in claim 6, wherein said receiving a request includes
30 receiving an input as the response to said prompt and returning said input with identification data for the data element of said prompt.

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8. A data access method as claimed in claim 7, wherein said sending said request includes generating a communications request on the basis of said input and the data element corresponding to said identification data.

5 9. A data access method as claimed in any one of the preceding claims, wherein said prompt navigation language is WML.

10. A data access method as claimed in any one of the preceding claims, wherein said prompt navigation language is HDML.

10

11. A data access method as claimed in any one of the preceding claims, wherein said method is executed on an interactive voice response (IVR) platform.

12. A data access method as claimed in claim 11, wherein said communications network
15 includes the IVR platform.

13. A data access method as claimed in claim 12, wherein said communications network includes the Internet.

20 14. A data access system, including:

means for connecting to a caller using a voice call path;
means for receiving a request for data from said caller on said call path;
means for sending said request to a location in a communications network determined
by said request, said location including said data in a prompt navigation language;

25 means for receiving and translating said data in said prompt navigation language into voice data; and

means for converting said voice data to voice for said caller on said call path.

15. A data access system as claimed in claim 1, wherein said translating means
30 deconstructs the prompt language navigation data into data elements including text data, link data or prompt data.

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16. A data access system as claimed in claim 15, wherein said translating means converts the data elements to respective text strings which comprise said voice data.

17. A data access system as claimed in claim 16, wherein said translating means converts
5 said link data to a text string representing a prompt for a single response.

18. A data access system as claimed in claim 16, wherein said translating means converts said prompt data into a text string which represents a prompt for a string response.

10 19. A data access system as claimed in claim 17 or 18, wherein said converting means processes said data elements sequentially and awaits a response from said caller when the data element represents a prompt.

20. A data access system as claimed in claim 19, wherein said request receiving means
15 receives an input as the response to said prompt and returns said input with identification data for the data element of said prompt.

21. A data access system as claimed in claim 20, wherein said sending means generates a communications request on the basis of said input and the data element corresponding to
20 said identification data.

22. A data access system as claimed in any one of claims 14 to 21, wherein said prompt navigation language is WML.

25 23. A data access system as claimed in any one of claims 14 to 22, wherein said prompt navigation language is HDML.

24. An interactive voice response (IVR) platform comprising a data access system as claimed in any one of claims 14 to 23.

30

25. A data access system as claimed in any one of claims 14 to 23, wherein said communications network includes the data access system.

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26. A data access system as claimed in claim 25, wherein said communications network includes the Internet.

27. A voice browser stored on a computer readable storage medium, including:
5 code for receiving a request for data from a user;
code for sending said request to a location in a communications network determined by said request, said location including said data in a prompt navigation language;
code for receiving and translating said data in said prompt navigation language into voice data; and
10 code for converting said voice data to voice for said user.

28. A voice browser as claimed in claim 27, wherein said translating code is adapted to deconstruct the prompt language navigation data into data elements including text data, link data or prompt data.

15

29. A voice browser as claimed in claim 28, wherein said translating code is adapted to convert the data elements to respective text strings which comprise said voice data.

30. A voice browser as claimed in claim 29, wherein said translating code is adapted to
20 convert said link data to a text string representing a prompt for a binary response.

31. A voice browser as claimed in claim 29, wherein said translating code is adapted to convert said prompt data into a text string which represents a prompt for a string response.

25 32. A voice browser as claimed in claim 30 or 31, wherein said converting code is adapted to process said data elements sequentially and await a response from said caller when the data element represents a prompt.

33. A voice browser as claimed in claim 32, wherein said request receiving code is
30 adapted to receive an input as the response to said prompt and return said input with identification data for the data element of said prompt.

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34. A voice browser as claimed in claim 33, wherein said sending code is adapted to generate a communications request on the basis of said input and the data element corresponding to said identification data.

5 35. A voice browser as claimed in any one of claims 27 to 34, wherein said prompt navigation language is WML.

36. A voice browser as claimed in any one of claims 27 to 35, wherein said prompt navigation language is HDML.

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37. A voice browser as claimed in any one of claims 27 to 36, adapted to execute on an interactive voice response (IVR) platform.

38. A voice browser as claimed in claim 37, wherein said communications network
15 includes the IVR platform.

39. A voice browser as claimed in claim 38, wherein said communications network includes the Internet.

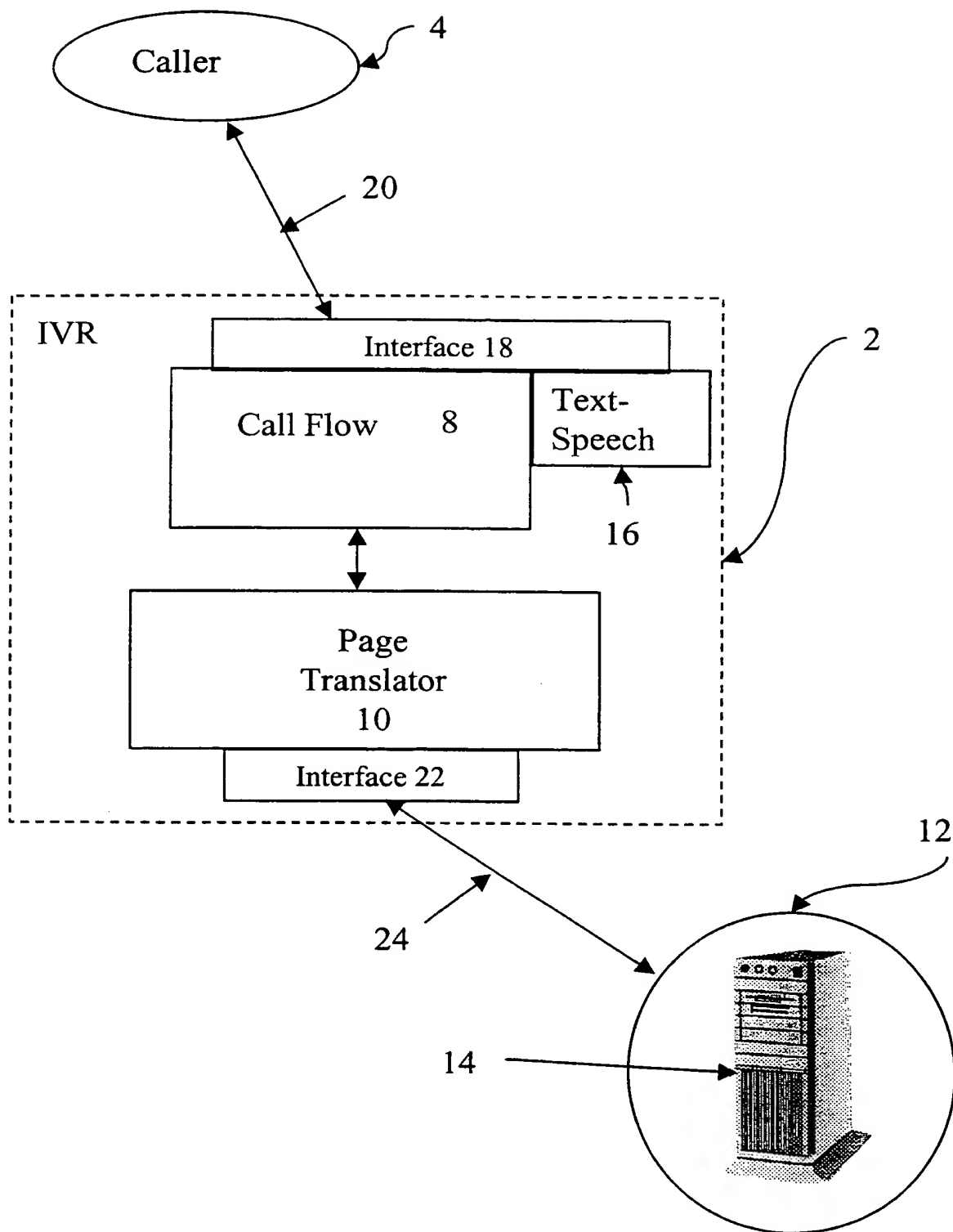


Figure 1

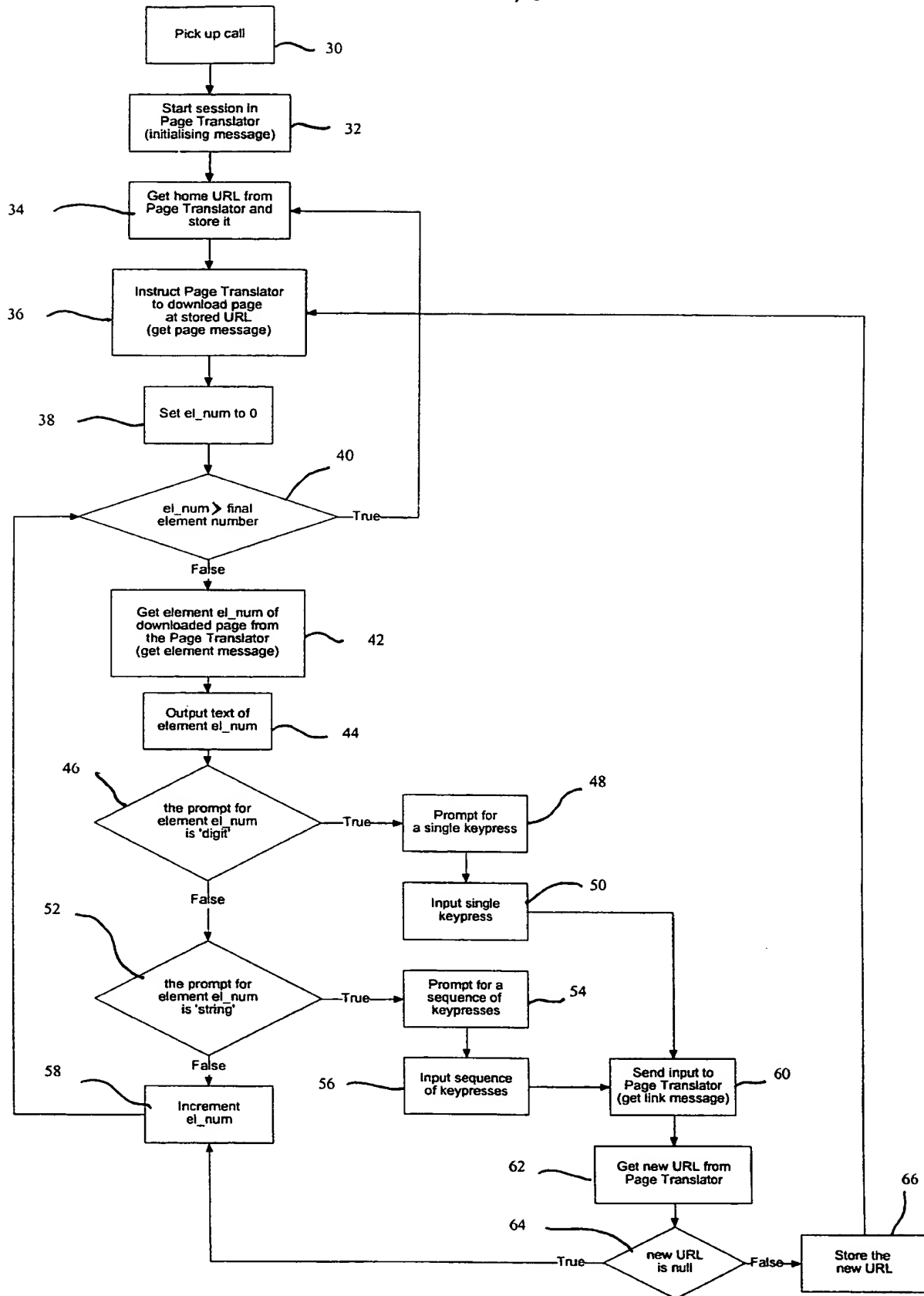


Figure 2

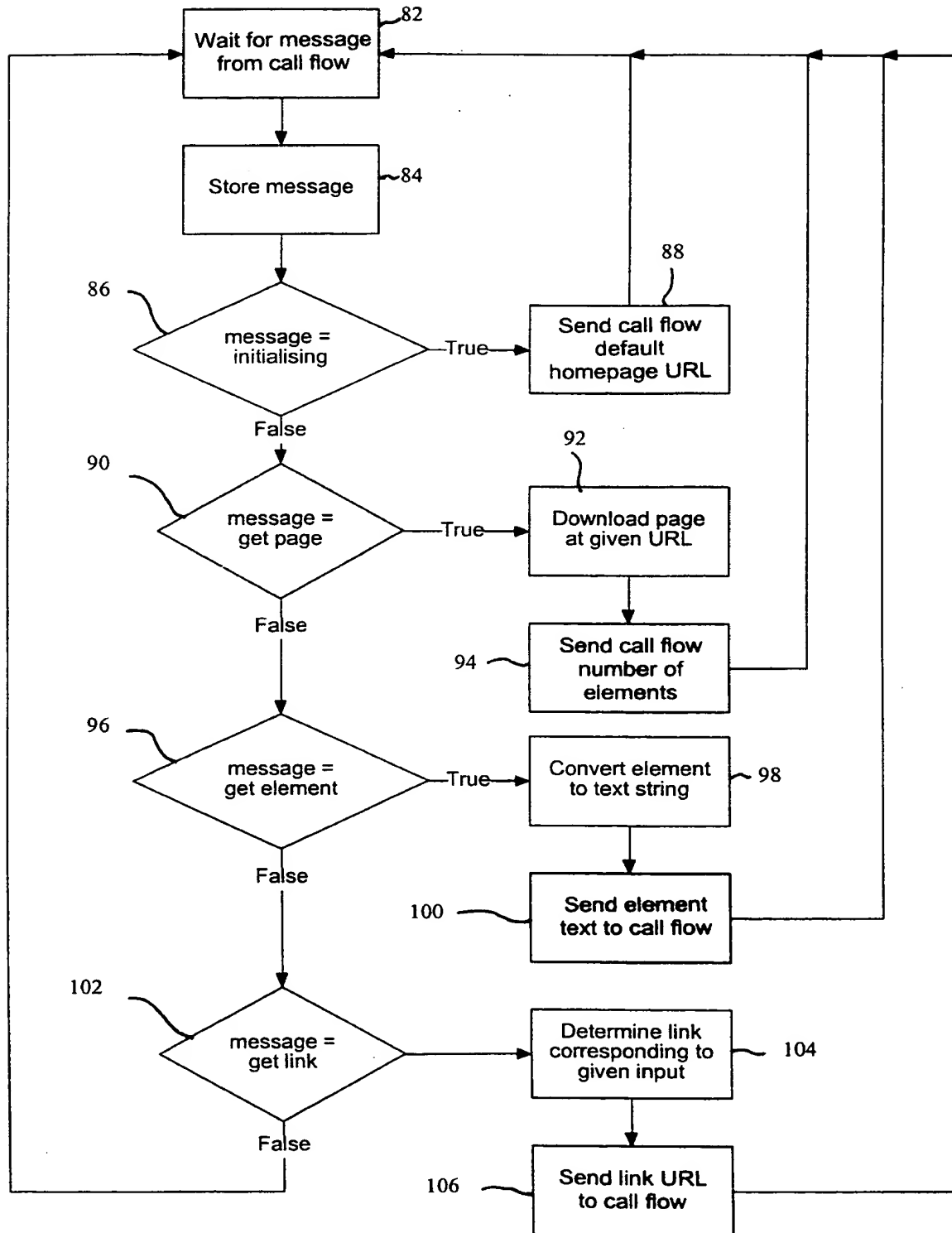


Figure 3

INTERNATIONAL SEARCH REPORT

International application No.
PCT/AU 99/01015**A. CLASSIFICATION OF SUBJECT MATTER**Int Cl⁶: H04M 3/50, G06F 17/30

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC: GLOBAL SEARCH

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

WPAT: INTERNET and VOICE and ACCESS

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X A	WO 97/32427 (Netphonic Communications, Inc.) 4 September 1997 Whole document Whole document	1-8,14-21,27-34 9-13,22-26,35-39
X A	GB 2317070 (International Business Machines Corp.) 11 March 1998 Whole document Whole document	1-8,14-21,27-34 9-13,22-26,35-39
X A	WO 98/13993 (British Telecommunications Public Ltd Co.) 2 April 1998 Whole document Whole document	1-8,14-21,27-34 9-13,22-26,35-39

☐ Further documents are listed in the
continuation of Box C☒ See patent family annex

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

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"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search
1 December 1999

Date of mailing of the international search report

20 DEC 1999

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.
PCT/AU 99/01015

This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document Cited in Search Report				Patent Family Member	
WO	97/32427	AU	19851/97	US	5953392
					END OF ANNEX

PCT COOPERATION TREATY

PCT

NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Assistant Commissioner for Patents
 United States Patent and Trademark
 Office
 Box PCT
 Washington, D.C. 20231
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in its capacity as elected Office

Date of mailing (day/month/year) 07 July 2000 (07.07.00)	Applicant's or agent's file reference 2235310/DBW
International application No. PCT/AU99/01015	Priority date (day/month/year) 17 November 1998 (17.11.98)
International filing date (day/month/year) 17 November 1999 (17.11.99)	
Applicant SCOTT, Andrew, Ewart	

1. The designated Office is hereby notified of its election made:

☒ in the demand filed with the International Preliminary Examining Authority on:

14 June 2000 (14.06.00)

☐ in a notice effecting later election filed with the International Bureau on:2. The election ☒ was☐ was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	Authorized officer Manu Berrod
Facsimile No.: (41-22) 740.14.35	Telephone No.: (41-22) 338.83.38